

SMART ASSET

Under the Guidance of

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Internet Of Things

Agenda

- ▶ Why Smart Asset?
- ▶ Hardware Components
- ▶ Sequence Of Operation
- ▶ Code snippet
- ▶ Demo

Why Smart Asset?

Smart asset is used to monitor precious and valuable items. The items can be jewellery, money and valuable personal things etc. This system provides security alerts incase of unauthorized human presence and also provides the signals in case of opening the asset storage box.



Features

- ▶ Human Presence detection
- ▶ Determines whether the asset lid is opened or closed.
- ▶ Tamper detection
- ▶ Mobile Interface
- ▶ API
- ▶ Sound alerts, RGB Bar indicator and RGB Bar indicator.

Components Used in this Project

- Angle Sensor



- Motion Sensor(PIR)



► RGB LED



► M5GO Stack core



► ENV III sensor



Software:

Ui flow has been used to implement blockly logic.

Sequence Of Operation

- ▶ Home Page of the Application



- ▶ When the Button A is clicked, Utilities screen is displayed.



- ▶ When Button B is clicked, The QR code for mobile interface is displayed



- ▶ When Button C is clicked, Output display page



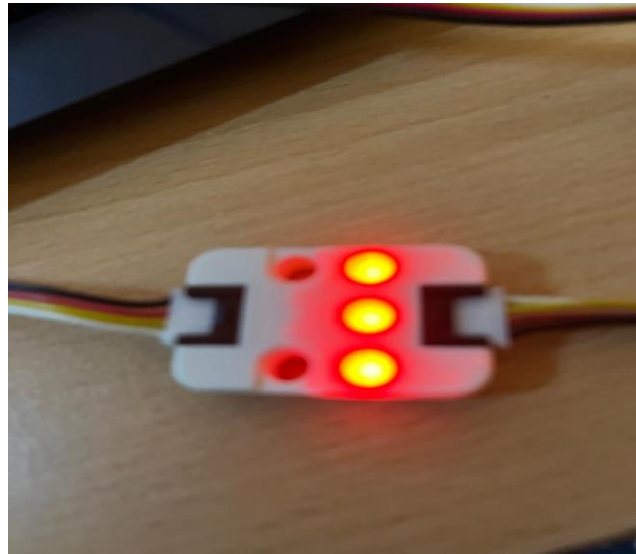
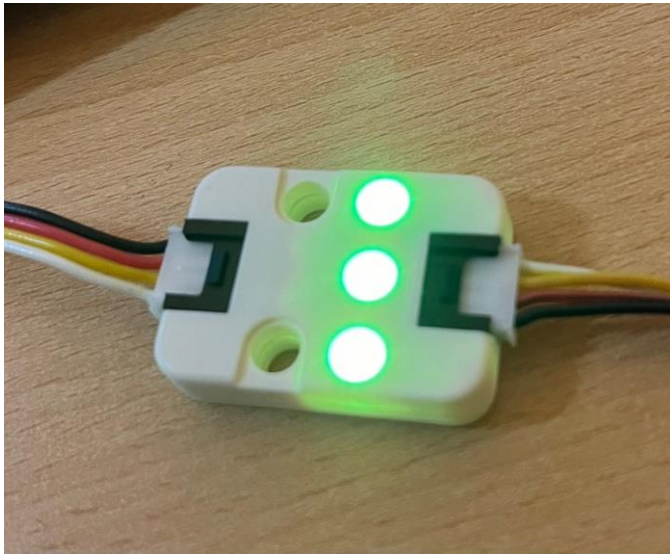
Change in Angle detection

- ▶ If the asset lid is opened, then the status will be displayed as “Opened” and RGB bar is displayed in red colour otherwise it is displayed as “closed” and RGB bar is displayed in green colour.



Human Presence detection

- ▶ If the Human presence is detected then the status will be displayed as “detected” and red color appears in RGB LED otherwise the status will be displayed as “Not detected” and green color appears in RGB LED.

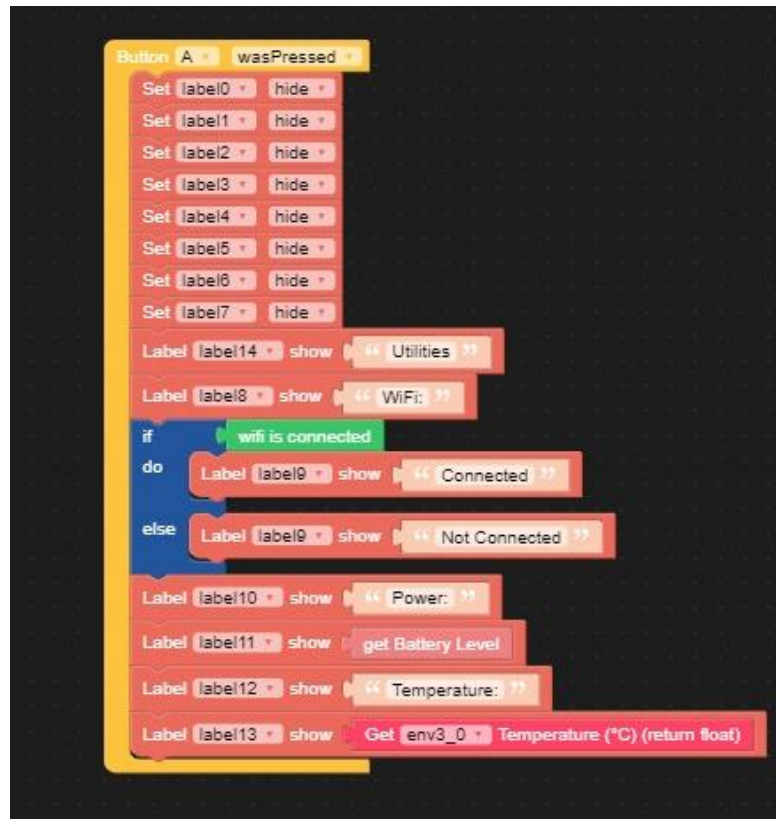


- ▶ If the tamper is identified, then the status will be displayed as “detected” and buzzer will be turned on otherwise the status will be displayed as not detected.
- ▶ The sensor data is stored in the Ezdata.
- ▶ The data stored in the EZ data Card is written on the SD Card.
- ▶ Mobile interface displays the utility data, sensor data and also contains a button to display user manual

Code Snippets



Utility Page code



QR code



Asset Lid detection code logic



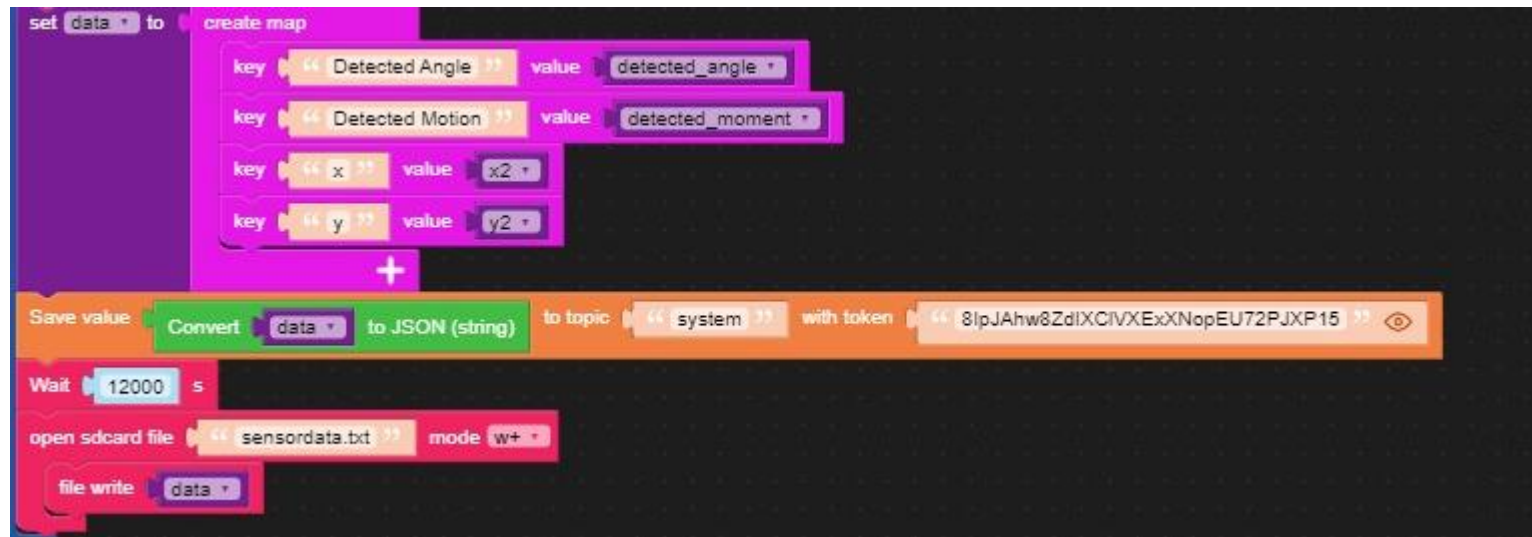
Human presence code logic



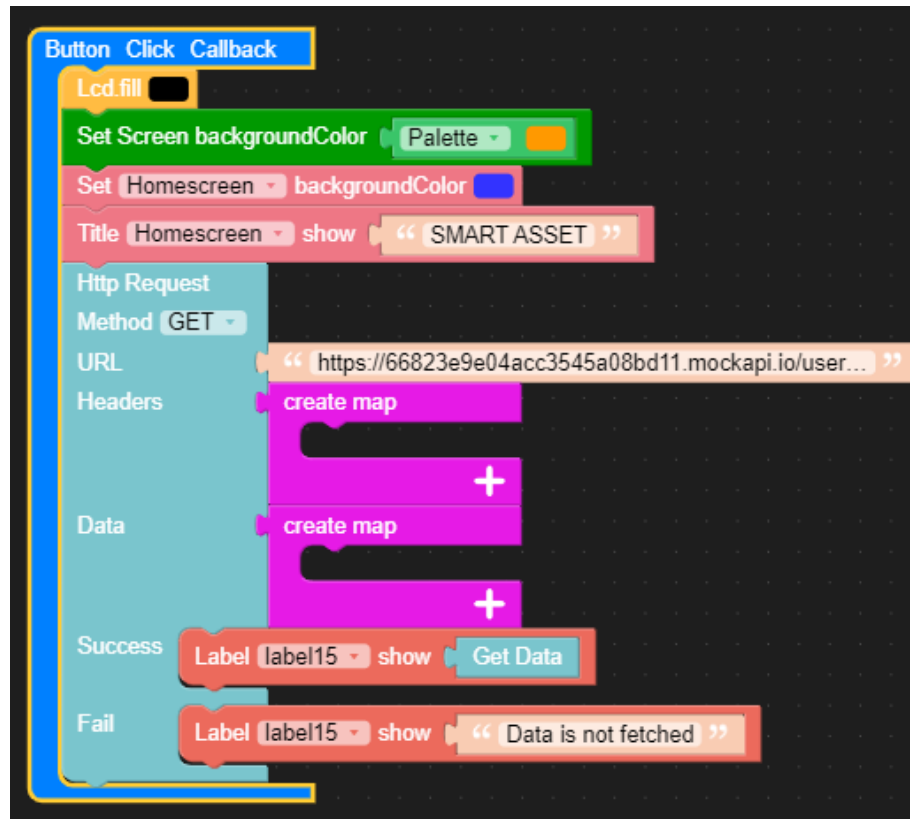
Tamper detection Code logic



Saving data to Ezdata and writing it to sd card



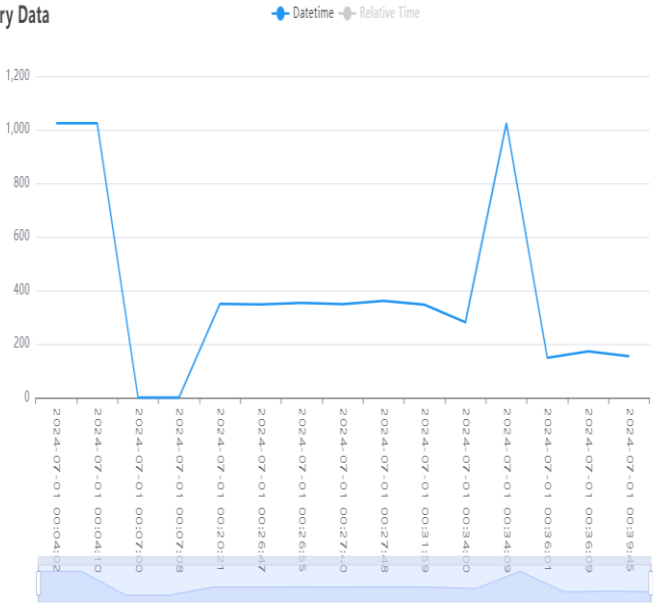
API



EZ Data

► Angle Sensor

History Data



CHART

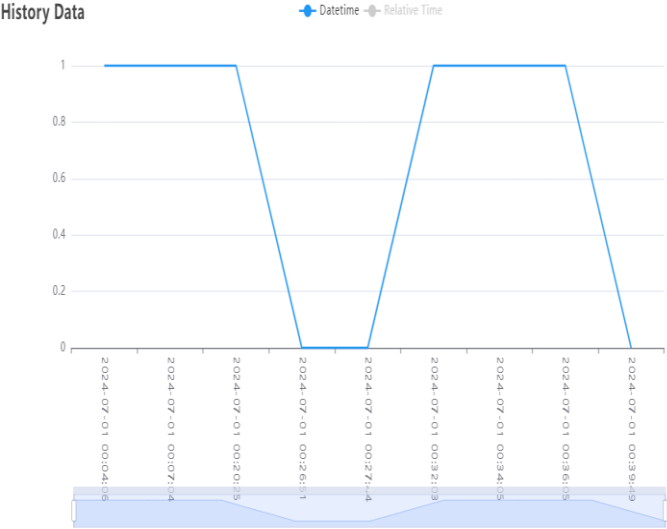
TABLE

Datetime	Value
2024-07-01 00:39:45	154.04
2024-07-01 00:36:09	172.04
2024-07-01 00:36:01	148.79
2024-07-01 00:34:09	1024.0
2024-07-01 00:34:00	280.82
2024-07-01 00:31:59	346.58
2024-07-01 00:27:48	360.59
2024-07-01 00:27:40	348.84
2024-07-01 00:26:55	353.59

REFRESH CLOSE

Powered by MESStack

► Motion Sensor



CHART

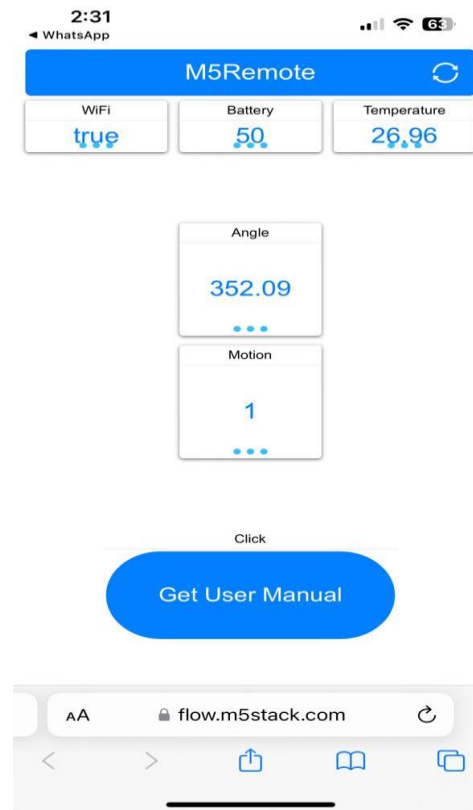
TABLE

Datetime	Value
2024-07-01 00:39:49	0
2024-07-01 00:36:05	1
2024-07-01 00:34:05	1
2024-07-01 00:32:03	1
2024-07-01 00:27:44	0
2024-07-01 00:26:51	0
2024-07-01 00:20:25	1
2024-07-01 00:07:04	1
2024-07-01 00:04:06	1

REFRESH CLOSE

Powered by MESonic

Mobile Interface



DEMO

References

- ▶ “PIR”,m5stack,<https://docs.m5stack.com/en/unit/pir> ,31 May 2024
- ▶ “ANGLE”,m5stack,<https://docs.m5stack.com/en/unit/angle>,31 May 2024
- ▶ RGB,m5stack,<https://docs.m5stack.com/en/unit/rgb>, 31 May 2024
- ▶ “Uiflow”,m5stack,<https://flow.m5stack.com/>, 31 May 2024
- ▶ V. Selvakumar, S. Sivanandan, V. Saillaja and A. Subbarayudu, "Smart Asset Management: Tracking and Optimizing Assets with IoT Sensors," 2023 2nd International Conference on Edge Computing and Applications (ICECAA), Namakkal, India, 2023, pp. 1354-1358, doi: 10.1109/ICECAA58104.2023.10212115.

THANK YOU

